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APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
08/340,664	11/16/94	GAUTVIK	K FARKS.0001

EXAMINER

HM11/0603

ART UNIT	PAPER NUMBER
SPECTOR,L 1646	27

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DATE MAILED: 06/03/98

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

OFFICE ACTION SUMMARY

☒ Responsive to communication(s) filed on 3/27/98

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 31-35, 6-10, 12, 14, 16-20 is/are pending in the application.
Of the above, claim(s) 6-10, 12, 14, 16-20 is/are withdrawn from consideration.
☐ Claim(s) _____ is/are allowed.
☒ Claim(s) 31-35 is/are rejected.
☐ Claim(s) _____ is/are objected to.
☐ Claim(s) 6-10, 12, 14, 16-20, 31-35 are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
☐ The specification is objected to by the Examiner.
☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.
☐ received in Application No. (Series Code/Serial Number) _____.
☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of Reference Cited, PTO-892
☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 22, 23, 25
☐ Interview Summary, PTO-413
☐ Notice of Draftperson's Patent Drawing Review, PTO-948
☐ Notice of Informal Patent Application, PTO-152

--SEE OFFICE ACTION ON THE FOLLOWING PAGES--

* U.S. GPO: 1996-404-496/40517

Part III: Detailed Office Action

Notice: Effective February 7, 1998, the Group and/or Art Unit location of your application in the PTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group Art Unit **1646**.

Claims 1 and 21-30 have been canceled. Newly submitted claims 31-35 are under consideration.

Double Patenting Rejections:

Claims 31-35 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 6 of U.S. Patent No. 5,010,010 for reasons of record in paper number 15, mailed 5/28/96, at page 5 as previously applied to claims 1 and 21-30.

Applicants intention to overcome this rejection by submission of a terminal disclaimer is noted.

Objections and Rejections under 35 U.S.C. §112:

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 33-35 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: The specification discloses the invention to involve the expression of full-length hPTH(1-84) in yeast or *E. coli* by expressing a secretory peptide, e.g. hPTH fused to either the Staph. A signal sequence or the yeast Mat alpha signal sequence, such that the protein is secreted and processed by the host cell. The claims as they are currently written contain no reference to the secretory leader sequence, and recite only expression of hPTH(1-84), which is not described by the specification as originally filed. The omission of the sequence encoding the

secretory leader amounts to a gap between the elements of the DNA to be expressed in the method recited in the claim, which is a product by process type claim.

Rejections Over Prior Art:

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

Claims 31 and 32 are rejected under 35 U.S.C. § 102(b) as anticipated by or, in the

alternative, under 35 U.S.C. § 103 as obvious over Brewer et al., U.S. Patent Number 3,886,132 for reasons cited in the Office Action, paper number 8 mailed 9/8/95, at page(s)5-7 as applied to claims 1-5, 11, 13 and 15. Applicants arguments, submitted 3/27/98, have been fully considered but are not deemed persuasive. It is first noted that applicants point to page 7, lines 20-35 of the specification for support of the recitation that the protein is "substantially homogeneous". It is noted that the term itself does not appear in the specification. Applicants then go on to urge adoption of the definition of "homogeneous" as defined in *Amgen v. Genetics Institute*. Applicants attempt to incorporate a definition from a decision by the Federal Circuit is improper. The central issue of prosecution in this application is the anticipation/obviousness of the claimed protein over that of the prior art. Applicants have urged that the protein currently being claimed is of superior purity to that of the prior art. However, the basis for any language used in the claims to distinguish the claimed protein from that of the prior art must be found in the instant specification as filed. Merely because a definition was set forth in the referenced *Amgen* case is not sufficient to show basis for that definition in the instant case. Homogeneity may be determined by any number of means; it cannot be said that the definition set forth in *Amgen*, as quoted by applicants, is an art-accepted definition of such in the sense that the skilled artisan would immediately envision that definition when contemplating the term "homogeneous". It remains that there is no definition in the instant specification as filed to breathe life and meaning into the term currently adopted in the claims, and it further remains that the protein of the prior art reasonably appears to have been "homogeneous" by the criteria set forth in the prior art disclosure.

Claims 31-34 are rejected under 35 U.S.C. § 103 as being unpatentable over Breyel et al. (3rd Eur. Cong. Biotech., cited by applicants) or Sung et al. (Biochem Cell Biol. 64:133, cited by applicants) or Mayer et al. (EP 0 139 076, cited by applicants), any reference of the three in view of Kaisha et al. (GB 2 092 596, cited by applicants).

Breyel et al. teach expression of mature hPTH in *E. coli*, see Summary, page 363. The protein was expressed and bacterial cell extracts assayed for activity, see page 366 for example.

Breyel differs from the instant claims only in that the protein was not purified from the bacterial cell extracts.

Sung et al. teach the construction of vectors for the direct expression of hPTH in bacterial, specifically *E. coli*, cells; see for example page 136, second column. At page 138, Sung et al. state "Study is now conducted in the expression of these gene products." Sung et al. do not actually disclose expression of the encoded protein or isolation of the expressed protein.

Mayer et al. teach recombinant production of hPTH in *E. coli*, see page 9, first full paragraph for example. The protein was purified from the cells and shown to be biologically active. Mayer et al. do not teach purification to the degree recited in the rejected claims.

Kaisha et al. teach a process for the production of hPTH. Although their patent is not drawn to recombinant production using bacterial or yeast cells, they disclose at page 2, first column, beginning at line 55 that:

> "The hPTH thus obtained can be collected easily by purification and separation techniques using conventional procedures such as salting-out, dialysis, filtration, centrifugation, concentration and lyophilisation. If a more highly purified hPTH preparation is desirable, a preparation of the highest purity can be obtained by the above-mentioned techniques in combination with other conventional procedures such as adsorption and desorption with ion exchange, gel filtration, affinity chromatography, isoelectric point fractionation and electrophoresis."

Thus, Kaisha et al. teach the desirability of making large quantities of hPTH, and that the person of ordinary skill in the art, given a preparation containing hPTH, would be able to devise a protocol for purifying such with a reasonable expectation of success and without undue experimentation.

It would have been obvious to the person of ordinary skill in the art at the time the invention was made to express hPTH from the vector disclosed by Sung et al. or alternatively as taught by Breyel et al. and Mayer et al., and then to purify the hPTH so produced as suggested by Kaisha et al. to obtain highly purified hPTH. The ordinary artisan would have been motivated to do so in view of the art recognized desirability of obtaining hPTH in pure form, as evidenced by all three cited references. The teachings of Kaisha et al. indicate that the ordinary artisan would have had at least a reasonable expectation of success at purifying hPTH once produced as taught and/or suggested by

Sung or Breyel or Mayer.

Advisory Information:

No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Lorraine M. Spector, whose telephone number is (703) 308-1793. Dr. Spector can normally be reached Monday through Friday, 8:00 A.M. to 4:30 P.M.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Dr. Stephen Walsh, can be reached at (703)308-2957.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist at telephone number (703) 308-0196.

Certain papers related to this application may be submitted to Group 1800 by facsimile transmission. Papers should be faxed to Group 1800 via the PTO Fax Center located in Crystal Mall 1 (CM1). The faxing of such papers must conform with the notices published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993) (see 37 C.F.R. § 1.6(d)). NOTE: If Applicant *does* submit a paper by fax, the original signed copy should be retained by applicant or applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED so as to avoid the processing of duplicate papers in the Office.

Official papers filed by fax should be directed to (703) 305-4242. Faxed draft or informal communications with the examiner should be directed to (703) 308-0294. **Please** advise the Examiner at the telephone number above when an informal fax is being transmitted.

Lorraine Spector, Ph.D.
Primary Examiner

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